

By providing these responses to EPA's queries concerning the TSIP report, the City does not concede that EPA has jurisdiction under the Clean Water Act to regulate sewer backups that do not reach the waters of the United States. Submission of these responses does not create a binding or enforceable commitment. Furthermore, the City and DEP reserve all rights, claims and defenses they may have to EPA's Administrative Compliance Order, CWA-020-2016-3012, dated August 31, 2016, and do not waive any rights, claims or defenses by submission of these responses or the TSIP. Neither the City nor DEP admits any allegation in the Administrative Compliance Order, and neither the City nor DEP admits or concedes any liability under federal or state law based on the allegations in the Administrative Compliance Order.

A. AO-related Questions

EPA Question 1: O&M Plan

AO Paragraph 62 requires the development of an O & M Plan. To date, the City has conducted a pilot plan (TSIP Phase 1) and has started a second pilot phase. Will the City develop an O & M Plan? If so, when will the City do so?

DEP Response: DEP did develop and submit to EPA on May 31, 2017 an O&M Plan titled ***Sewer Backup Prevention and Response Plan*** (“O&M Plan” or “Plan”). EPA approved the Plan on 8/10/17. DEP further updated the Plan on 2/14/18 in response to EPA comments.

The Plan included the TSIP, which DEP implemented from July 2017 until July 2020. DEP is currently drafting an update to the Plan and will share with EPA when finalized.

EPA Question 2: Benchmarks

AO Paragraph 62.e.2 requires the development of a “Sewer Backup Benchmark,” which will establish a benchmark for the annual level of reduction of Sewer Backups. Why has the City not developed such a benchmark? Will the City do so? Does current City data allow for, at a minimum, the establishment of a preliminary sewer benchmark?

Key Issue #1: NYC did not include a sewer benchmark goal such as for SBUs per 100 miles per year. This would drive a resource commitment to achieve a certain level of service. Currently, some of the worst zones (sub community board levels) are well over 100 SBUs/100 miles/year, well above the citywide average of 33 or so. Please explain the City's rationale.

Page 14: Many zones showed strong improvements, some much less (or not at all) and many of the Queens Zones showed very high backup rates per 100 miles of sanitary sewer (over 100 (QN-ZN5, ZN8, ZN11, ZN15 (377 BACKUPS/100 MILES/PER YEAR), ZN16, ZN18) as well as close to 100 (Z6, Z7, Z20). What Level of Service/Backup benchmark is NYC aiming for here?

General Question: Has NYC arrived at a SBU benchmark Citywide/Level of Service? IF not, why not? How many additional jet trucks and crews are needed to achieve that Level of Service? And how much additional money is needed by BWSO to achieve the Level of Service goal?

DEP Response: The DEP O&M Plan includes activity-based best management practices for the TSIP. DEP continues to evaluate appropriate activity-based best management practices (e.g., proactive, programmatic program/schedule of re-inspection/cleaning) based on performance metrics related to sewer backups; the expansion of the pilot into Phase 2 will further that evaluation. DEP believes a program of best management practices is better suited to a system as large and diverse as NYC's.

DEP selected the Community Boards (CB) for inclusion in TSIP Phases 1 and 2 of the pilots because of their higher than average rate of confirmed SBUs as compared to CBs citywide. DEP has developed a decision matrix that aims to achieve a certain level of service identifying areas in the Phase 1 CBs, where DEP will perform more targeted or frequent inspections. The decision matrix assigns an inspection cycle to each street segment based on the number of confirmed SBUs in the past five years and the TSIP Phase 1 inspection results for both cycles. Inspection cycles for this initial matrix occur in 3-month, 6-month, 1-year, 2-year, and 5-year cycles, but inspection cycle intervals may be adjusted further to most effectively allocate resources.

DEP is making best efforts to make the most efficient use of resources to achieve DEP's goal to reduce the frequency of SBUs. DEP believes the program proposed and the schedule for completing the inspections in Phase 2 and revisiting certain areas identified as part of Phase 1 will support DEP's efforts to achieve such goal. Any determination on additional resources or funds must be based on the cumulative findings of the TSIP program as it develops.

EPA Question 3: Implementation Schedule

AO Paragraph 62.e.5 requires the development of an implementation schedule, for at least 7 years, that will demonstrate the continuous achievement of the annual Sewer Backup Benchmark. Why has the City not been able to develop such an implementation schedule? Will the City do so? What further information is needed for the City to do so?

DEP Response: The results of Phase I of the TSIP demonstrated to DEP the value of the TSIP and need to continue the TSIP into a Phase 2 to better evaluate the findings over multiple community boards and multiple years. Expansion of the TSIP into Phase 2 is consistent with the Order's 7-year schedule.

EPA Question 4: Unconfirmed SBUs

Paragraph 62.e.7 requires the assessment of unconfirmed SBUs and the potential establishment of a benchmark for their reduction. Has the City adequately assessed unconfirmed SBUs? Why has the City not developed an unconfirmed SBU benchmark? Will the City do so?

General Question: The TSIP Report does not discuss any analysis on unconfirmed SBUs and whether TSIP work results in any reduction in unconfirmed backups within the TSIP Areas. What is the best way to address unconfirmed SBUs?

DEP Response: Unconfirmed SBUs, by definition, do not implicate DEP's system. As part of every response, DEP must determine whether any action is required to address an SBU. If the

sewer is not surcharged when the crew arrives, the crew looks for evidence that it had been (e.g., debris on ladders) – if there is no such evidence, the SBU is deemed unconfirmed. DEP responds and resolves calls within 7 hours and does not believe time is an issue in recognizing whether an SBU is confirmed or unconfirmed.

B. TSIP-related Questions

EPA Question 1 – TSIP Extension/Expansion

Page 23: The City identifies new CBs for Phase 2 TSIP: Brooklyn 314,318 and Queens 410 and Staten Island 501. Phase 2 TSIP has started and will be completed in 2023. No information on the new CBs is given in terms of miles of sewer, sewer segments, inspection planned. The City should include that information.

What are the backup rates per 100 miles per year in 314 (Midwood), 318 (Mill Basin), 410 (Ozone Park) and 501 (Northern SI)?

DEP Response: DEP would like to discuss with EPA and will bring responsive data to the meeting for discussion.

Page 23: Phase 2 will be 314, 318, 410 (two-year cycle) and 501 (3-year cycle). Isn't 501 nearly done because it was worked on during Phase 1 and can this be done on a shorter cycle?

Key Issue #2: NYC is not proposing to re-inspect/re-clean the Brooklyn TSIP Phase 1 CBs in accordance with its improved inspection frequency table, until the completion of the Phase 2 Brooklyn CB inspections. Can the City increase its sewer crews/trucks to conduct Phase 1 inspections and expand to Phase 2? Please clarify.

Page 3 (and elsewhere): TSIP Phase 2 has already started? While the City had previously discussed Staten Island CB 501 as unofficially being included in TSIP Phase 1, EPA was surprised to learn that that work was really part of TSIP Phase 2. Please clarify.

Page 23/24: TSIP Phase 1 inspection frequencies – Will DEP be adding resources to do the additional inspection/cleaning for the increased inspections? If not, why not? Can a crew be added to Brooklyn so that they can do the TSIP Phase 2 inspections and carry out the additional re-inspections of Phase 1 problem sewers (Page 24 indicates that TSIP Phase 1 area re-inspection schedule will not take place until after Phase 2 CBs in Brooklyn are completed)?

DEP Response: DEP initiated TSIP Phase 2 on 8/1/2020. Staten Island 501 is being formally included in Phase 2 and will undergo a complete cycle of inspections. DEP is making every effort to make the most efficient use of resources to achieve DEP's goal of reducing the frequency of SBUs. DEP believes the program proposed and the schedule for completing the inspections in Phase 2 and revisiting certain areas identified as part of Phase 1 will support DEP's efforts to achieve such goal.

DEP is focusing resources on Phase 2 areas, but does intend to inspect the hot spots identified in Phase 1 more often. DEP is currently setting up a regular inspection schedule for Phase 1 CBs:

hot spots every 3 months and other areas scheduled for every 6 months, 9 months, 12 months, 24 months, or 60 months per the matrix.

Any determination on additional resources or funds must be based on the cumulative findings of the TSIP program as it develops.

Brooklyn CB 314 has a lot of combined sewers – are there a lot of problems in CB 314 (or more at the southern edge of the CB?). What about Far Rockaway on the eastern portion of Queens CB 414?

DEP response: Phase 2 will address all of CB 314, including the southern edge. DEP will evaluate the inclusion of CB 414 in later phases of the TSIP.

Page 24 indicates that TSIP Phase 1 area re-inspection schedule will not take place until after Phase 2 CBs in Brooklyn are completed? Should these segments be jetted regardless of inspection results because there were some sewers that had backups even though the sewer inspections didn't show problems?

Page 24: 6.2.3 – TSIP Phase 1 flushing program – Will the entire BK-Z11 and Queens Z15 be jetted? At what frequency?

DEP Response: Based on sub-sewershed trace analysis, lateral sewer traces that showed no improvement during TSIP in both Brooklyn and Queens will be flushed on a to-be-determined cycle.

Key Issue #3: It seems like NYC has the ability to have a finer level approach via the Zones for the worst CBs and the Phase 1 and Phase 2 TSIPs. Can the City implement a fine scale inspection and cleaning program to target the more problematic zones with CBs?

DEP Response: DEP is taking the finer level approach with the Phase 1 CBs. However, DEP wants to continue to assess TSIP Phase 2 area by performing two inspections, then do further refinements after analyzing those data in order to focus resources where most needed. This effort requires completing the 2 inspections for Phase 2.

Is it worthwhile to split community boards into Zones and address the worst zones in more community boards?

DEP response: DEP will evaluate this approach after completion of TSIP Phase 2.

EPA Question 2 – O&M Plan Impact on SBU Rates

Page 6: After first cycle corrective measure have been taken on a segment, how have those measures impacted further SBUs from a segment? What can be learned from that?

DEP Response: It is difficult to isolate the TSIP-only benefits because our other proactive sewer maintenance programs have significant overlap with TSIP. However, in response to EPA's

query, DEP isolated those street segments with only TSIP cleaning and looked at the confirmed SBU rate from the first cleaning to the current date (look-forward period) and then during an equal time period before the first cleaning (look-back period). DEP found that out of 2,884 street segments in TSIP Phase 1 areas that had TSIP-generated cleaning performed, from the first cleaning, 172 (6%) showed a decreased SBU rate, 125 (4%) showed an increased SBU rate, and 2,587 (90%) did not show any change. Out of those segments that did not show change, 2,560 (89%) had no confirmed SBUs during the time periods assessed for each segment.

DEP will continue to monitor the 125 segments with increased SBU rates. However, please note that DEP counted any increase, and 101 (80%) of the 125 segments had zero SBUs before cleaning and only one SBU after cleaning. The data for these segments may change as more time passes and the look-forward and look-back periods expand.

EPA Question 3 – TSIP Impact on SBU Rates

Page 10: The City calculates that Phase 1 TSIP areas had 8% less SBUs than non-Phase 1 TSIP areas. EPA questions the adequacy of this decrease and notes the following:

a) For CB313 only 18% improvement with 113 SBUs per 100 miles during the 3 TSIP years, FY18 to FY20.

b) CB412 improved 28%, but still had 131 SBUs per 100 miles per year during TSIP.

c) CB315 with a 45% reduction down to 48 backups/100miles/year

d) CB413 had a 31% reduction to 61 backups per 100 miles, but still needs more attention to lower rate further down towards citywide average.

Please clarify.

Page 12: Why are the improvements in some of the TSIP 1 areas, like BK Zone 11 (2% improvement), BK-Z8 (19% improvement) and BK-Z1 (16% improvement), lower or equal to the Citywide average of 19% improvement? Why was there such a difference between the successes, say in BK-Z5, BK-Z7 which were 65 and 70% improvement respectively, versus BK-Z11 with only a 2% improvement?

DEP Response: The variations in the response to the pilot in each CB is one of the reasons DEP chose to continue the pilot in Phase 2 and why DEP is continuing to investigate hot spots from Phase 1.

C. “Variable” Relationships

Page 19: The City indicates that it does not have slopes of TSIP Phase 1 sewers for over 80% of segments. Is that really the case? If so, why? Don't NYC's maps have invert elevations? Wouldn't this be a crucial variable?

DEP Response: The GIS has a slope field, which many times isn't filled in. However, in most cases even though stated slope is missing the invert elevations are available. We have reassessed this variable after using the invert elevations to calculate the average and minimum sewer slope per street segment. Using this technique, we were able to calculate an estimated average slope for 8,827 out of the 9,490 TSIP street segments (93%) and an estimated or stated minimum slope for 8,729 out of 9,490 TSIP street segments (92%).

This reassessment showed a relationship between SBU rate, sewer size, and sewer average slope per street segment. Sewers with rounded slopes up to 0.02 tend to be larger trunk sewers, with an average diameter of 13". SBU rates increase with a decrease in sewer size down to an average sewer size of 9". After this, the sewer size flattens out and SBU rates decrease with increasing slope. There is no relationship between segment inspection rating and average sewer slope.

Page 20: Will crown sewers and dead end sewers get a different cleaning regime as a result that they are more prone to backups? Separate versus Combined Sewers?

DEP Response: "Variable" relationships, as assessed, represent an average over the whole community board. DEP finds it more appropriate to use variables measurable on the street segment level in lieu of broader generalizations like a community board average. For instance, while on average these sewer configurations appear more prone to backups, individual locations show significant variability.

Page 20: It is surprising that there is no clear correlation, except in Queens 413, between SBUs and floors/building on streets. Please clarify.

DEP Response: DEP can discuss the relevant data from our analysis at the meeting with EPA.

Page 21: (Section 5.4.2) – How about Census population data per segment? Is there any relationship between population on the segment and backups? Or population per manhole per street segment?

DEP Response: The smallest geographical census unit, the census block, usually comprises 1 city block, comprised of 4 street segments, so population data are not available down to the street segment level. DEP compared confirmed SBUs per square mile per census block versus total population per square mile per census block. DEP found no relationship between the two using 2010 Census data. DEP will re-evaluate this analysis with 2020 Census data.

Page 21: EPA is surprised by the following comment: "For those street segments with capital projects completed most recently (but before FY15), both the average TSIP segment rating and average confirmed SBUs was very similar to those segments that did not have DDC capital projects completed in this period. The number of segments with completed projects 3 years before TSIP Phase 1 and the number during TSIP Phase 1 were too small to draw conclusions from." Please explain.

DEP Response: There was a very small number of segments that had capital projects completed from FY15-FY20. The SBU rate on the 22 segments with capital projects completed between FY15 and FY17 was very low during all time periods compared to the other groups, while those segments with capital projects completed during Phase 1 had higher than average SBU rates. Since these segments are a very small percentage of the whole and present conflicting data, DEP does not want to draw any conclusions from this analysis (for example, if capital projects completed during FY15-FY17 reduced SBU rates on all the segments, a high SBU rate before FY15 would be seen and a low SBU rate after FY17 would be seen. This was not the case).

Page 21: What is the relationship between wet days, higher SBUs than on dry days and I&I issues? Since TSIP areas are mainly separately sewerage, does this point to I&I problems that need addressing through capital improvements like lining pipes, downspout/footer drain removals, smoke testing etc.?

General Question: For sewers subject to repeat wet weather backups or subject to high I&I, will these be placed into the SOAP program and potentially Capital Improvement Program? What are the time frames for both?

DEP Response: DEP continues to evaluate whether there is any relationship between wet days and higher SBUs and implications for I&I, if any. This is a factor that DEP will continue to evaluate as part of the TSIP Phase 2.

D. General Questions

EPA Question 1 – WPCP → WRRF

Page 3: In the sewershed definition, the report uses the term “Wastewater Resource Recovery Facilities.” Is there any significance in this change of terminology instead of using “Water Pollution Control Plants?”

DEP Response: DEP believes “wastewater resource recovery facility” (WRRF) better conveys the multi-faceted nature of our facilities. At our 14 [Wastewater Resource Recovery Facilities](#), wastewater undergoes five major processes of treatment, which closely mimic how wetlands, rivers, streams, and lakes naturally purify water. After about 8–10 hours, our facilities remove pollutants from wastewater and release clean water into NYC waterways. Today, our WRRFs also recover energy, nutrients, and other resources from the treatment process.

EPA Question 2 – Sewer Facts

Page 10: How many miles of sewers is NYC using to calculate its Citywide backup rate? Storm sewer miles should not be counted. Please clarify.

Page 17: Section 5.4 variable relationships – What about separate sewers versus combined sewers, or is that not relevant since all TSIP zones are generally separately sewerage?

DEP Response: Numbers of miles of sewers reflect only combined and sanitary sewers. All TSIP sewers are sanitary sewers.

E. Corrections

EPA Question: *Page 6 (bottom table and narrative): The City states that “of those 195 street segments” and then lists numbers with percentages. The percentages are of the total segments, not of the 195. Please clarify.*

DEP response: DEP will add the percentages of the 195.

EPA Question: Page 10: Section 5.2.1 states that CB 502 had one of the highest SBU rates in the City. Is this correct, or was this supposed to say CB 501, since on page 24, CB 501 will be added to the Phase 2 TSIP Program?

DEP Response: This is correct. As 501 did have TSIP-related work performed during Phase 1, it was not included as a non-TSIP community board in this analysis.